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NOTES ON THE GENUS *PHOEBIS* AND THE DESCRIPTION OF A NEW SPECIES

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Several years ago I published a revision of the genus *Phoebis* (1929, American Museum Novitates, No. 368). Since then I have had an opportunity to examine additional collections. In one made in Ecuador by Mr. G. H. H. Tate, of The American Museum of Natural History, I found a unique male related to the species *eubule* but quite distinct from it. It is, in fact, the only clearly defined species of the genus to come to light during the past fifty years.

Phoebis tatei, new species

Figures 1, 2, 3

MALE.—The upper surface has a ground color of ochreous yellow to buff, with broad margins of lighter chalky scales. Approximately two-thirds of the fore wing is covered by a chalky scaling which extends from the apex to the second cubitus vein and completely across the wing from the outer margin to the coastal margin including the cell, except the basal portion. It then runs along the outer margin to the outer angle in a band almost one-fourth the width of the wing and tapers along the inner margin almost to the base. On the hind wings the chalky area is more restricted, being almost one-eighth the width of the wing and extending along its outer margin from the costal margin to the second cubitus. The hind wings are noticeably emarginate, especially toward the anal angle where there is a tendency to a lobe. A small group of brown scales forms a discal spot on the fore wing, and the discal spot of the under surface shows through on the hind wing.

The under surface is dull ochreous-yellow covered with fine wavy lines of Indian red and heavier Indian-red markings quite similar to those found on *P. eubule* Linnaeus. The discal spot of the forewing is light pinkish-brown surrounded by dark brown; that of the hind wing is double, silvery, and very narrowly margined with dark brown. There are small dark spots along the margin at the terminal of each vein and fold. The abdomen is ochreous with a dark brown band along the dorsum. The antennae are seal brown with narrow lighter bands at the junctions of the segments.

The valvae are subtriangular, the dorsal margin smoothly rounded and surmounted by a small papular marginal process; the distal process is slightly prolonged and rounded at the end, which has a tendency to be bulbous. The harpes are slender, pendant, and armed on the posterior margin and the tip with short notched spines. The margin of the valvula is heavily "chitinized." The annellus is long and heavy; the juxtae are short, slender, and filamentous. The uncus is delicate, terminating in a slender, pointed digital process; the vinculum is sturdy. The saccus is heavy and

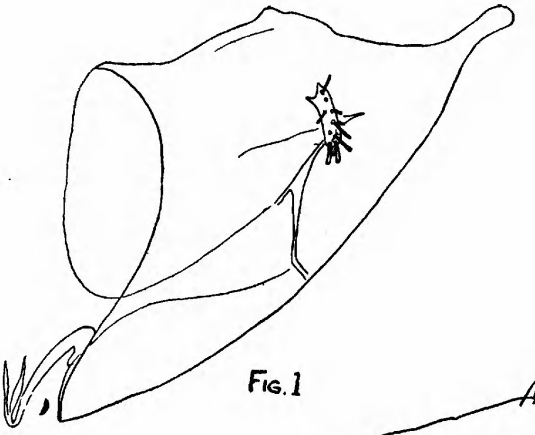

FIG. 1

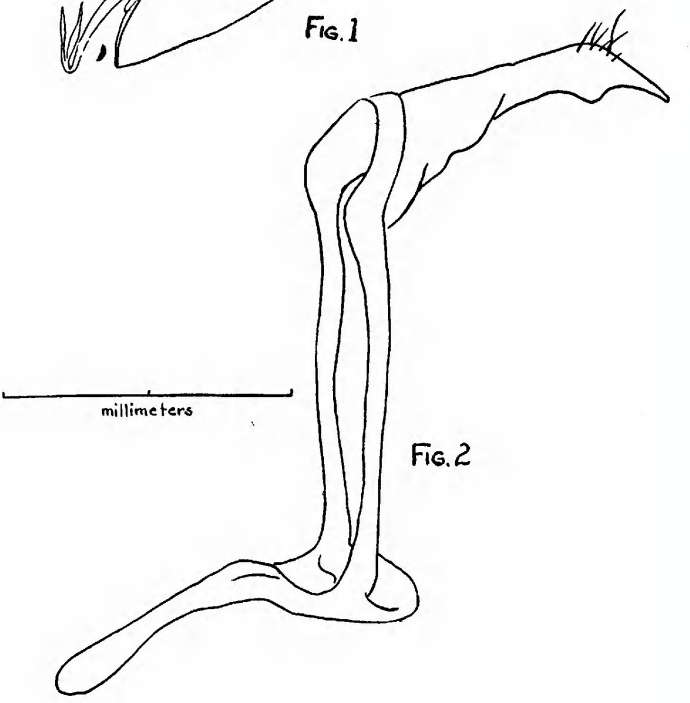

FIG. 2

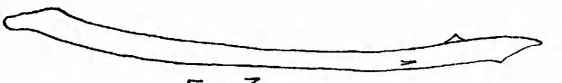

FIG. 3

Fig. 1. Valva, *Phoebis tatei*, new species (type).
Fig. 2. Uncus, etc., *Phoebis tatei*, new species (type).
Fig. 3. Aedoeagus, *Phoebis tatei*, new species (type).

longer than the uncus. The aedoeagus is moderately stout, slightly curved, and armed on the distal end with two or three spines.

HOLOTYPE MALE.—A single specimen from Guayaquil, Ecuador, taken in May, 1922, by Mr. G. H. H. Tate. Type in the collection of The American Museum of Natural History.

P. tatei more closely approaches *P. eubule* than it does any of the other species of the genus. It differs from *eubule* in the following characters: general color; the great extension of the chalky scaling on the fore wings; the more sharply arched costal margin of the fore wing; the more acute apex; the less curved inner margin of the fore wing; the tendency to a lobe at the anal angle of the hind wings; and the antennae being seal brown in *tatei* and magenta in *eubule.*

On the basis of genitalia this is as distinct a species of *Phoebis* as any now recognized. It differs markedly from *P. eubule* in the structure of the valvae, resembling it only in that the spines on the harpes are notched. The valvae are most like those of *P.* (*R.*) *triti* Linnaeus. It differs in having smaller harpes, which are pendant, while those of *triti* are erect and massive. It also differs in the lack of labides and in that the distal process is shorter than in *triti.* The uncus of *tatei* differs from both *eubule* and *triti* in the form of the digital process and in general build. The aedoeagus is more like that of *eubule,* except that it is a much lighter structure.

Phoebis editha (Butler)

Figures 4, 5, 6

After working up the genus in 1929, in which study I had dissected many males, I turned to the females and soon found that *editha,* which I had considered synonymous with *thalestris* Illiger and had placed as a seasonal form of that species (p. 9), was quite distinct. This led to a correspondence with Captain N. D. Riley at the British Museum in regard to the male type. Captain Riley made a dissection of the type, and it proved to be a good species. I am reproducing in this paper a set of drawings based on the originals made for me by Captain Riley, to whom I here wish to express my gratitude. The following is a description made from these drawings.

The valvae are subtriangular; the dorsal margin is smoothly concave, the marginal process long and slender, the distal process stubby and rounded, and the disto-ventral margin smoothly rounded. The harpes are long, slender, pendant, slightly swollen at the distal end, and armed with moderately long notched spines. The uncus is long and heavy and the digital process prominent and almost straight. The vinculum is sturdy. The saccus is heavy but not quite so large as the uncus.

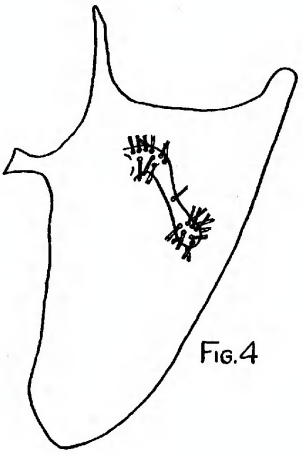

FIG. 4

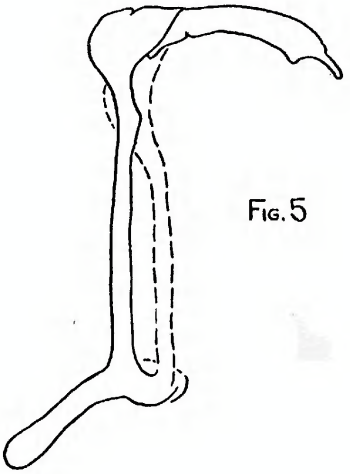

FIG. 5

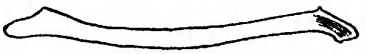

FIG. 6

Fig. 4. Valva, *Phoebis editha* (Butler) (type).

Fig. 5. Uncus, etc., *Phoebis editha* (Butler) (type).

Fig. 6. Aedoeagus, *Phoebis editha* (Butler) (type).

Note:—Figures 4, 5 and 6 have been redrawn from the originals made for the author by Captain N. D. Riley of the British Museum.

The aedoeagus is moderately stout, slightly curved throughout, with a very sharp reflexion at the distal end and armed distally with a few short, sturdy spines.

The genitalia of this species may be distinguished from all others in the genus by the combination of two characteristics on the valvae: the notched spines on the harpes and the long slender marginal process. I know of no means of distinguishing the males from those of *eubule*. The only male specimen of which I know is the type. From Butler's figures ('Lepidoptera Exotica,' plate XXXIX, figs. 1, 2, 3, 4), I think it would pay to make a careful examination of all male "*eubule*" from the island of Hispaniola, especially the Haitian end. The fore wing of the male *editha* seems to be somewhat falcate, and the under surfaces seem to be much brighter orange than is usual in *eubule*, although I have seen *eubule* that approach it closely. Inasmuch as the females are by no means uncommon, I believe that a diligent search will uncover additional male specimens of this obscure species. An examination of the genitalia can be made *in situ* by carefully brushing the scales from one of the valvae and determining the form of the process on the dorsal margin of that organ. In *eubule* it is mammillate and low; in *editha* it is long and slender.

A Correction

In my revision, 1929, American Museum Novitates, No. 368, p. 13, I stated that *Prestonia clarki* Schaus was possibly a synonym of *Phoebis argante* Fabricius. I have since seen the type and it is a distinct genus and species unrelated to anything else in the Neotropical fauna.

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thalestris Illiger, 1802, 'Magazin,' I, p. 207, No. 31.